



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

# HVTC AL 3/C 345EPR TS PVC 28KV 133% CSA



## PRODUCT HIGHLIGHTS

Southwire's 28KV HVTC is a CSA approved copper tape shielded cable for Industrial and Commercial medium voltage applications. FT4, -40°C, and 105°C rated for use in harsh Canadian environments. Rated for installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable. For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

## CONSTRUCTION

### Conductor

- Class B - compact stranded -8000 Series Aluminum -ACM

### Options

- Class B compact stranded copper
- Class B compressed stranded copper
- Strand blocking technology
- Tinning on copper conductors

### Conductor Shield

- Extruded semi-conducting thermosetting polymeric layer

### Insulation

- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.345 inches (8.76mm) - nominal
- Insulation level: 133%
- 105°C rated

### Insulation Shield

- Extruded Semi-conducting thermosetting polymeric layer
- CSA 68.10 - Shield Removal/termination requirements are printed on the surface
- Phase identification as per ICEA Method 3, using printed circuit numbers
- Meets requirement of ICEA but built to CSA standards

### Copper Tape Shield

- Helically wrapped 5 mil copper tape with 25% overlap

### Bonding Conductor

- Class B compressed stranded bare copper  
- in accordance with ASTM B3 and B8

### Fillers

- Non-wicking, non-hygroscopic

### Overall Jacket

- Black PVC (optional colours available)
- Nominal Thickness:  
No.1 AWG to No.1/0 AWG = 0.11 inches (2.79mm)  
No.2/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 345 EPR 28KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

**TABLE 1 - WEIGHTS & MEASUREMENTS**

HVTC Product Code	Conductor Size *	Conductor Diameter		Diameter Over Insulation		Diameter Over Insulation Shield		Bonding Cond. Size	Approx. Overall Diameter		Minimum Bend Radius		Approx. Weight of Cable		Max. Reel Weight (reel and cable)**		Max. Reel Diameter / Width **		Max. Length of Cable on Reel **	
	AWG or Kcmil	inches	mm	inches	mm	inches	mm	AWG	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL345D42-001	1(19)	0.299	7.6	1.019	25.9	1.099	27.9	6	2.637	67.0	18.5	469	2741	4079	9640	4373	108/70.5	2.74/1.79	2950	899
AL345D42-010	1/0(19)	0.336	8.5	1.056	26.8	1.136	28.9	6	2.717	69.0	19.0	483	2920	4345	9730	4413	108/70.5	2.74/1.79	2800	853
AL345D42-020	2/0(19)	0.376	9.6	1.096	27.8	1.176	29.9	6	2.863	72.7	20.0	509	3284	4887	9108	4131	108/70.5	2.74/1.79	2300	701
AL345D42-030	3/0(19)	0.423	10.7	1.143	29.0	1.223	31.1	6	2.965	75.3	20.8	527	3538	5265	9338	4236	108/70.5	2.74/1.79	2200	671
AL345D42-040	4/0(19)	0.475	12.1	1.195	30.4	1.275	32.4	6	3.077	78.2	21.5	547	3836	5709	9420	4273	108/70.5	2.74/1.79	2050	625
AL345D42-250	250(37)	0.520	13.2	1.250	31.8	1.330	33.8	4	3.196	81.2	22.4	568	4191	6237	8680	3937	108/70.5	2.74/1.79	1700	518
AL345D42-350	350(37)	0.616	15.6	1.346	34.2	1.426	36.2	4	3.403	86.4	23.8	605	4804	7149	8761	3974	108/70.5	2.74/1.79	1500	457
AL345D42-500	500(37)	0.736	18.7	1.466	37.2	1.546	39.3	3	3.663	93.0	25.6	651	5682	8455	7805	3540	108/70.5	2.74/1.79	1100	335

NOTE: These are minimum average dimensions as per CSA Standards.

\* Other conductor sizes and outer jacket colours are available upon request. (#s in brackets represent # of strands / conductor)

\*\* Longer maximum lengths may be possible. Standard sizes and lengths may be supplied. Reel sizes are not guaranteed. The factory reserves the right to make changes as necessary to optimize manufacturing requirements.





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### DESIGN

#### Qualification Standards

- CSA C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 KV
- CSA C68.3 - Shielded & Concentric Neutral Power Cable - 5 to 46 kV
- CSA C22.2 No. 230 - Tray Cables
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- AEIC CS-8 - Qualification Testing Requirements

#### Flame Test Ratings

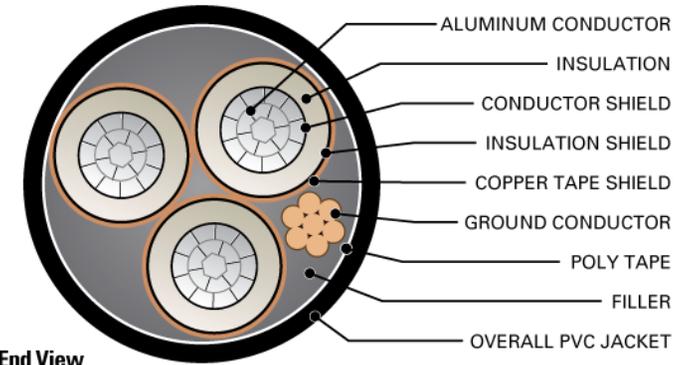
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr)

#### Product Ratings

- CSA C22.2 No. 2556 & No. 0.3. - Wire and Cable Test Methods
- CSA LTGG [-40°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating
- CSA TC-ER \*\*\*

#### Operating Temperatures

- -40°C - CSA Cold Bend and Impact Temperature
- -25°C - Min. Installation Temperature
- 105°C - Max Continuous Operating Temperature
- 140°C for Emergency Overload Temperature
- 250°C for Short Circuit Temperature



End View

**TABLE 2 - ENGINEERING SPECIFICATIONS**

HVTC Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R <sub>DC</sub>		AC Resistance @ 90°C 60 Hz (triplex formation) R <sub>AC</sub>		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X <sub>L</sub>		Capacitive Reactance @ 60Hz (triplexed) X <sub>C</sub>		Positive - Sequence Impedance*	Zero - Sequence Impedance*	Short Circuit Current (each phase conductor) @ 60Hz	Allowable Ampacities in Ventilated Cable Tray †	Allowable Ampacities Directly Buried in Earth ‡
	lb	Newtons	Ω / 1000 ft.	Ω / km	Ω / 1000 ft.	Ω / km	mH / 1000 ft	mH / km	μF / 1000 ft	μF / km	Ω / 1000 ft.	Ω / km	MΩ • 1000ft	MΩ • km	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
AL345D42-001	1506	6701	0.211	0.692	0.265	0.870	0.1323	0.4342	0.0401	0.1315	0.0499	0.1637	0.0662	0.0202	0.266 + j0.052	0.622 + j0.325	3.7	158	177
AL345D42-010	1901	8455	0.168	0.551	0.211	0.693	0.1274	0.4180	0.0429	0.1408	0.0480	0.1576	0.0618	0.0188	0.212 + j0.050	0.565 + j0.312	4.7	181	200
AL345D42-020	2396	10657	0.133	0.436	0.167	0.549	0.1228	0.4029	0.0459	0.1507	0.0463	0.1519	0.0577	0.0176	0.168 + j0.048	0.517 + j0.300	5.9	208	228
AL345D42-030	3020	13435	0.105	0.345	0.132	0.433	0.1182	0.3877	0.0494	0.1622	0.0446	0.1462	0.0537	0.0164	0.133 + j0.046	0.478 + j0.286	7.4	239	258
AL345D42-040	3809	16942	0.084	0.274	0.105	0.345	0.1138	0.3734	0.0533	0.1748	0.0429	0.1408	0.0498	0.0152	0.106 + j0.045	0.446 + j0.271	9.4	273	292
AL345D42-250	4500	20017	0.071	0.232	0.089	0.292	0.1110	0.3643	0.0560	0.1838	0.0419	0.1374	0.0473	0.0144	0.090 + j0.044	0.424 + j0.258	11.1	302	321
AL345D42-350	6300	28024	0.051	0.166	0.064	0.209	0.1052	0.3452	0.0629	0.2063	0.0397	0.1302	0.0422	0.0129	0.064 + j0.041	0.389 + j0.236	15.5	368	385
AL345D42-500	9000	40034	0.035	0.116	0.045	0.147	0.0996	0.3267	0.0713	0.2340	0.0375	0.1232	0.0372	0.0113	0.045 + j0.039	0.358 + j0.212	22.2	454	462

\* Calculations are based on 5 mil 25% over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter

† Ampacities are based on Table D17N of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

‡ Ampacities are based on Table D17E of the 2015 Canadian Electrical Code Part I

\*\*\* For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

